



## A GUIDE TO INSECTICIDE, HERBICIDE AND FERTILIZER USE

### INSECTICIDES, HERBICIDES AND FERTILIZERS AFFECT WATER QUALITY

Storm water picks up and carries pollution as it runs off of rooftops, parking lots, lawns and other surfaces. The polluted storm water that flows through storm drains does not get treated before emptying into our streams, rivers and lakes.

Even small amounts of commonly used chemicals, such as insecticides, herbicides and fertilizers, can be dangerous to human health and degrade water quality. **Insecticides** and **herbicides** can damage or kill aquatic animals and plants. **Fertilizers** accelerate algae growth, which can affect oxygen levels in our waterways, harming beneficial aquatic wildlife.

The practice of **integrated pest management** is encouraged to minimize these negative impacts.

### WHAT IS INTEGRATED PEST MANAGEMENT (IPM)?

Integrated pest management is a highly effective approach that minimizes the use of chemicals and maximizes the use of natural processes. Chemical insecticides, herbicides and fertilizers should be the option of last resort. IPM involves three different control methods:

**Biological:** Using natural enemies of a pest, such as lady bugs to control aphids

**Cultural:** Using gardening methods, like mowing high to shade out weeds

**Chemical:** Using chemical applications correctly and sparingly

### NATURAL ALTERNATIVES TO CHEMICAL APPLICATIONS PEST CONTROL

- Handpick or wash pests off of plants
- Use row covers in gardens

- Install copper flashing around garden beds to deter snails and slugs
- Apply milky spore powder to kill Japanese beetle grubs
- Spray insecticidal soaps and horticultural or vegetable oils on plants to deter aphids, mites, whiteflies and caterpillars
- Apply diatomaceous earth to deter aphids, tomato hornworms and other pests
- Use neem oil or azadirachtin extract to deter cutworms, mites and nematodes
- Introduce predatory insects such as lady bugs, spiders, soldier bugs, predatory mites and nematodes to rid gardens of aphids, mites and insect eggs
- Plant repellent plants, such as marigolds and mint

### WEED CONTROL

- Spread mulch around planting beds
- Water, but not excessively
- Aerate lawn
- Apply corn gluten meal, especially for dandelions and crabgrass
- Pull weeds by hand
- Pour boiling water on weeds in driveways and patios
- Pour vinegar on weeds
- Set lawn mower at 3 inches high or greater

### FERTILIZER

- Leave grass clippings on the lawn
- Apply blood and bone meals
- Mix compost with soil
- Choose organic fertilizers

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### SAFER INSECTICIDE, HERBICIDE AND FERTILIZER USE

When a problem arises that cannot be managed with natural methods alone, careful chemical use may be necessary. Here are some tips for safe application of chemical insecticides, herbicides and fertilizers when they must be used:

- To minimize broad use of chemicals, use a chemical that addresses the **particular pest, plant or weed**
- Utilize **non-aerosol** chemical applications
- Choose the **least toxic** products available. For instance, baits and traps are safer options than applied chemicals
- Buy **ready-to-use** products. Concentrated chemicals could spill and cause more damage to waterways and wildlife
- **Never** put chemicals down any drain
- **Cleanup** excess amounts of insecticides, herbicides and fertilizers and dispose of properly; never wash them into storm drains
- **Use kitty litter** or other absorbent material to clean up spills, then dispose of used absorbent properly
- **Read labels** and follow instructions exactly for insecticide, herbicide and fertilizer use
- **Do not** apply chemical insecticides, herbicides and fertilizers when rain is imminent or on bare soil
- **Do not** assume your lawn needs fertilizer; test your soil for nutrient levels and fertility
- Use **earth-friendly** fertilizers low in nitrogen and phosphorus and pesticide free; avoid “weed and feed” varieties of fertilizers

### SAFER STORAGE OF CHEMICALS

- Always store chemicals in their original container, and in a place inaccessible to children and pets
- Never remove labels
- Clearly mark containers, applicators and utensils used for mixing or applying chemicals, store them with the chemicals and never use them for any other purpose

### SAFER DISPOSAL OF CHEMICALS

Dumping of unused chemicals down a drain or on the ground can be illegal. Dispose of unwanted or unused portions of insecticides, herbicides and fertilizers properly through the Indianapolis **ToxDrop** program. For disposal locations, call 327-4TOX or visit [www.Indy.gov/ToxDrop](http://www.Indy.gov/ToxDrop).

### HOW YOU CAN HELP

Everyone can help keep common pollutants out of our waterways by adopting these practices:

- Don't over-water your lawn; water during the cool times of the day, and don't let water run off into a storm drain
- Reduce the amount of paved area and increase the amount of vegetated area in your yard
- Clean up your pet's waste or it can end up in our waterways
- Use a car wash instead of washing your car in your driveway
- Consider innovative approaches to storm water management, such as using rain barrels, planting rain gardens or using green roofs
- Clear trash and debris from storm drains and driveway pipes
- Dispose of paint, motor oil and cleaning products properly; call the Indianapolis ToxDrop program at 327-4TOX for more information

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Mayor Ballard launched SustainIndy and created the Office of Sustainability in October 2008. SustainIndy is a bold and innovative enterprise aimed at delivering long-term cost savings to the City, building the local economy, improving our quality of life and enhancing our environmental and public health. Its efforts are designed to aggressively move Indianapolis forward in making it one of the most sustainable cities in the Midwest.